THE

NECESSITY FOR EARLY OPERATION

IN CASES OF

COMPOUND DEPRESSED FRACTURE OF THE SKULL,

IN WHICH THERE IS REASON TO APPREHEND THE ONSET OF BRAIN IRRITATION FROM THE PRESENCE OF BONE FRAGMENTS.

BY

PHILIP E. MUSKETT

(Honorary Surgeon to the Sydney Hospital).

READ IN THE

SURGICAL SECTION OF THE INTERCOLONIAL MEDICAL CONGRESS, ADELAIDE, 1887,

BY

THE HON. J. M. CREED,

Vice-President.

which was read for me, last week, at the Adelaide Medical Congress by my friend Dr J M. Creed.

The medical dinner was the first Intercolonial one ever held on Australia, and will therefore possess an historic association.

I understand that the Example of Adelaide will be followed in due course by Melbourne and Sydney, and I think likely to promote a good feeling amongst the members of the profession in Australia.

The summer is now coming on

space with us, and
with it comes the
langour and lassitude
inseparable from a
warm moist climate.
I'm certainly unfit for
for mental exertion, still
in due time I hope to
indulge in a hearty
laugh at your
expense.

Yours faithfully
P. E. Russell

W. Bryant Esq.

135 Elizabeth Street,
Hyde Park,
Sydney.

Sept 14. 1887.

Dear Mr Bryant,

Kindly this I have ventured to forward you a paper advocating Early treatment in certain cases of depressed fracture of the Skull

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MR. PRESIDENT AND GENTLEMEN,

By way of introduction, I think it befitting to bring under your notice the following words of Mr. Erichsen, in speaking of the treatment of depressed fractures of the skull. He says "so far as my own experience is concerned, which is necessarily drawn purely from civil practice, I can say that, with the exception of the case which has just been referred to (a case which he has narrated) I do not recollect ever having seen a case recover, in which a compound depressed fracture of the skull occurring in the adult had been left without operation; but I have, on the other hand, seen several instances of recovery in which the bone had been elevated and fragments removed." Now, this statement coming from so eminent and well-known an authority is full of interest and should carry great weight in any discussion relative to the treatment of these cases, so with this object in view I have referred to it in order that it may form a basis for any arguments which may follow. In the face of the recent triumphs and gratifying successes in the domain of brain surgery which have been recently recorded under the hands of Mr. Victor Horsley, Mr. Pearce Gould,

Mr. Rickman Godlee, and others, with their eminent coadjutors, it may seem a matter of comparatively small interest to advocate any individual opinion with regard to the treatment of compound depressed fractures of the skull. But, believing as I do, that many of these cases terminate fatally (enter immediately or remotely) from the surgeon in charge pursuing too quiescent a policy, I have endeavoured for some time past to throw the little weight I could on the side of what I consider to be their proper treatment, and to uphold as far as lay in my power the principle of the early removal of all depressed fragments which are likely to prove a source of brain irritation. It must be recollected, too, that cases of compound depressed fracture of the skull are comparatively common, and are likely to come within the cognisance of us all, while the refinements of diagnosis involved in the detection and localisation of morbid growths within the brain, together with the exceedingly high character of surgical skill which is necessarily required in their removal, will place such cases beyond the pale of the everyday surgeon. But in Australia, where head injuries are by no means rare, surgeons have to practise in remote or isolated localities, and are thereby debarred from the advantages of consultative opinion and assistance. I urge, therefore, that it is very necessary that they should be well acquainted with the practical treatment of these injuries, and no less important is it for them to act upon their knowledge when occasion requires it. By the kindness of Dr. Creed (to whom also I desire to express my indebtedness for bringing the present paper under your notice), I have been enabled to place before you a tabulated analysis of twelve successful cases of compound depressed fracture of the skull, compiled from a total of twenty-two cases, in which operative measures were resorted to at the Sydney Hospital. In that paper I have contrasted these results with those which were accessible to me from all sources.

Thus I quoted Nelaton's statement that of the sixteen cases of injury to the head in which the Trephine had been used in the Parisian Hospital during 15 years, all terminated fatally, while out of 45 cases, according to Erichsen, reported by Lente of New York, only 11 recovered, and finally that Bryant records but 12 recoveries out of a total of 51 cases at Guy's Hospital during 7 years. In three separate contributions to the *Australasian Medical Gazette*, viz., in July, 1883, in December, 1883, and in October, 1886, I have pleaded to the best of my ability for the removal of all irritating fragments in those cases where there is good reason to suspect splintering and comminution of the inner table, whether symptoms of compression are present or not. Even if there be recovery without recourse to operation in such instances, would not the patient's condition, I would ask, be always a source of grave apprehension in the future. As William MacEwen has well pointed out "in not a few of those cases in which immediate recovery has taken place without operation and the patient has been discharged from the hospital as cured, yet in the course of months certain cerebral changes as evinced by motor, sensory, or psychic phenomena become developed; and, in some these affections become permanent; or ultimately lead to a fatal issue." Which one amongst us if he sustained a fracture of this nature, and haply recovered by operation, would not find satisfaction in knowing that he was secure from the deplorable after effects which might accrue from the persistent irritation of the brain by the presence of sharp-edged bone fragments. With regard to the pertinent question as to whether there are any special dangers attached to operative procedure in these cases, I would reply that with due antiseptic precautions and with a reasonable amount of surgical skill the dangers attached to such operations are in no sense so much to be dreaded as the risk incurred by letting chance do what it may, and leaving nature to do her best

or worst as the case may be. Many surgeons act promptly in cases of punctured fracture in accordance with the universal opinion that such are unusually dangerous and require immediate and special treatment, but fail to recognise the important fact that the other varieties of fracture of this region, although not coming under the definition of punctured, yet possess the same intrinsic dangers, and require equally active treatment. We are told by all the recognised authorities, and wisely, that these punctured fractures are to be treated by operation without delay, the reason adduced being that the comminution and splintering of the inner table is far and wide, and that the object of early action is not to remove symptoms of compression which may or may not exist, but to prevent the inflammation which must surely follow if these irritating fragments are allowed to remain in contact with the dura mater. As to this question of brain irritation, I contend, and the chief purpose of the present communication is to draw attention to the fact, that very few compound depressed fractures of the skull, be of what variety they may, *are* exempt from the dangerous characteristics which are ordinarily supposed to belong to the true punctured fracture alone. Therefore, I would earnestly impress upon surgeons the importance of recognising the dangers attached to each and every form of all compound fractures of this region; and whether pressure symptoms be present or not, I believe the right practice, when there is evidence presumptive of a widely extending splintering of the inner table, is to operate without delay. There is one other point to which I desire briefly to refer and it is that I am quite in accord with Mr. Harman Tarrant, my colleague at the Sydney Hospital, from whom, as House Surgeon, I learnt the value of Hey's saw in preference to the Trephine in all cases where its employment is possible, and I may add that there are but few instances in which it

cannot be used with advantage. I believe there is no direct benefit to be gained from the Trephine, but with Hey's saw, by cutting out a V-shaped piece from some convenient situation, an equal space for using the elevator is availed of, without the necessity of removing so much bone. Also, in the conduct of these cases, antiseptic measures are to be adhered to, a fair amount of scalp and pericranium is to be reflected in order to afford room for manipulation, the latter membrane is to be carefully preserved, free exit for drainage in a dependent position ensured, and the greatest care and attention bestowed on the after treatment of the case. As bearing a practical application on the foregoing, I have furnished the following short report of a case of compound depressed fracture of the skull which came under my care recently at the Sydney Hospital, and which terminated successfully :—

Joseph D., ætat 12, a schoolboy, was admitted to the accident ward of the Hospital at 7.45 a.m., March 12th, 1887, the history of the case being that he had been kicked on the head by a horse a quarter of an hour before, and that he had been picked up in a state of insensibility. When admitted he was still unconscious, and was regarded by the house surgeon to be in a dangerous condition, but soon afterwards he came round slightly, there being some degree of response to conjunctival stimulus. On examination it was found that there was a lacerated wound about 2½ inches in length at the back of the head, over the region of the posterior portion of the left parietal bone. The finger passed into the wound detected a considerable depression of the outer table of the skull, corresponding roughly in extent to that of the scalp wound. The outer table was split into two fragments longitudinally, between which the probe could be passed for some distance, showing marked depression of the inner table. After consultation, in view of the wide-spread injury to the inner table, I decided to

elevate and remove if necessary whatever fragments were depressed or irritating the dura mater. The requisite preparations for the operation were then made, and the patient placed under the influence of chloroform, of which anæsthetic but little was required. The head was then completely shaved for the double purpose of carrying out antiseptic measures and of facilitating the after treatment by the more efficient application of the ice-bag. After washing the scalp freely with a warm solution of 1 in 40 carbolic lotion, the horns of the original wound were enlarged and the superior scalp flap reflected upwards, the pericranium being carefully preserved and lifted gently as well. From the inferior edge of the wound at its centre another incision was made, and the smaller flaps on each side of it turned downwards in a similar manner, the object of the latter incision being to give room for manipulation as well as for dependent drainage. A small, wedge-shaped piece of bone from the contiguous and intact bone was then removed by means of Hey's saw, and the forceps, and through the opening so formed an elevator was passed beneath the outer table fragments. These were removed with comparatively little difficulty, when the diffused nature of the injury to the inner table became clearly seen. The fragments of this latter were comminuted and depressed to a considerable extent, and the projecting corner of one being seized, by careful manipulation it was gently separated from the rest and withdrawn. The remaining comminuted portions were then removed, when the dura mater was fortunately discovered to be intact, and as the brain rose well up to the level of the inner table the case looked promising. All angular projections were also rounded off with the bone forceps, and the pericranial and integumental flaps replaced. These were approximated together with silver wire sutures, but more loosely towards the dependent part, so as to leave free exit for drainage, and a piece of gauze soaked in weak carbolised

lotion was kept lightly in position by a turn or two of gauze bandage, as a dressing. The patient was then placed in the quietest part of the ward, and screens arranged around the bed to keep him as undisturbed as possible. Dry cold was applied to the head by means of the ice-bag, and a calomel purge administered, the diet being kept low in addition. Everything progressed satisfactorily after the operation. The wound healed up kindly, and the notes state that he was up and about on March 26th, the fifteenth day after the operation. A few small shells of bone escaped subsequently, but the boy is now in robust health.

TURNER AND HENDERSON,

SYDNEY,

NEW SOUTH WALES.